



Drug Injection Among Street Youths in Montreal: Predictors of Initiation

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ABSTRACT *In North America, street youths are generally considered at very high risk of injection drug use. To estimate the incidence rate of injection drug use in this population and to identify predictors of injection drug use, we conducted the present analysis. Among participants to a cohort study initiated in January 1995, we selected subjects who had never injected at study entry and had completed at least one follow-up questionnaire. Predictors of initiation were identified using Cox proportional hazard regression models. Among the 415 never injectors (mean age at entry 19.5 years), 74 had initiated injection by January 2000 (incidence rate 8.2 per 100 person-years). Independent predictors of initiation were recent episode of homelessness; age younger than 18 years; being tattooed; recently using hallucinogens, heroin, and cocaine/crack/freebase; having a friend who injects drugs; and having ever experienced extrafamilial sexual abuse. This study showed that injection drug use is frequent among street youths, but prevention appears possible.*

KEYWORDS *Initiation, Injection drug use, Predictors, Street youth.*

INTRODUCTION

Injection drug use represents a major public health problem. Worldwide, it is responsible for 100,000 to 200,000 deaths each year.¹ Injection drug use is also a major cause of human immunodeficiency virus (HIV) epidemics in many areas of the world,² and it is now the most important risk factor for hepatitis C in developed countries.³ While it may be difficult to measure precisely the frequency of injection drug use, it is estimated that there are around 5 million injection drug users in the world.¹

During the last two decades, the prevalence of injection as the main route of drug administration has decreased in many regions of the developed world,⁴⁻¹⁴ while it has increased in numerous developing countries.¹⁵ More recently, reports on amphetamine use in Scotland and heroin use in the eastern United States suggest a resurgence of injection drug use among new, young users in some developed countries.^{16,17} The causes of these changes are only partially understood, but individual, legal, cultural, economic (including drug markets), and political conditions have

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been identified as factors that influence drug use patterns and their evolution throughout the world.^{14,15}

Little is known about the factors that characterize individuals at risk of initiating injection drug use. Several studies have looked at the risk of making a transition (a shift in the main route of drug administration)^{10,12,18–24} or the risk of restarting injection among former injectors.^{14,25,26} A few studies, all cross sectional, examined the factors associated with the risk of first injection, comparing individuals who ever injected drugs with those who had never done so.^{7,14,23,24,27–34} Many of these studies assessed familial and psychological backgrounds. In general, they showed that early onset of drug use,²⁹ early deviant behaviors,^{24,27–29} and a history of familial traumatic events^{30,32} are more frequent among individuals having injected drugs than among others. In the few studies that examined drug use patterns previous to first injection, having snorted heroin while using crack,³¹ prolonged use of heroin,^{7,33} heavier heroin use, and number of detoxification episodes³³ were found to be associated with initiating heroin injection. Other factors reported to be associated with moving to injection drug use were group affiliation and having social networks that include injection drug users^{32,33,35} and ethnicity.^{24,31,34} Results for gender are not consistent.^{7,23,34}

In North America, street youths are generally considered to be at very high risk of injection drug use. In the United States, estimates of the proportion of street youths who have injected drugs range from 30% (see Ref. 36) to around 40% (see Refs. 37–39), and in Canada, from 17% (see Ref. 40) to nearly 40% (see Refs. 41 and 42). Given that injection drug use is a major public health problem among street youths, this study was undertaken to identify those at risk for injection to develop pertinent prevention programs. Using data from a prospective cohort study, we conducted the present analysis to estimate the incidence rate of injection drug use and to identify predictors of initiation of injection among street youths.

METHODS

Study Population

A prospective cohort study was initiated in Montreal, Canada, in January 1995 to determine the prevalence and incidence of HIV infection and associated risk behaviors among street youths.^{43,44} Criteria for entry in the study, defined in collaboration with street youth agencies, were chosen to capture as much as possible the whole spectrum of street youths in Montreal. These criteria were being “street-active”; 14–25 years of age; English or French speaking; and being able to provide informed consent and to complete a questionnaire. Youths were considered street-active if they had, in the last year, either regularly used the services of street youth agencies or been without a place to sleep more than once. These agencies included shelters, drop-in centers, outreach vans, and other facilities offering outreach services; all services offered were free of charge and consisted mainly of short-term housing, food banks, accompaniment, and references to diverse social and health services. One of the vans also offered needle-exchange services.

Recruitment Strategy and Participants Follow-up

Subject recruitment was ongoing during the study period. Study interviewers recruited participants through regular visits to all major street youth agencies in Mon-

treal. Visit frequency was established according to the number of youths served by each agency and ranged from twice a week to once a month. Youths agreeing to participate were given an appointment for their interview at our study office located in the downtown area where most street youths hang out.

Cohort participants were followed on a semiannual basis. Due to the transient nature of street youth life, rigorous follow-up procedures were employed. To facilitate tracing, detailed contact information was collected at each interview. Interviewers contacted participants around the due date of the follow-up visits by telephone, pager, or leaving messages with parents or friends or at agencies known to be visited by the youth. The project had a toll-free telephone number to facilitate contact by the subjects. A list of unreachable subjects was sent monthly to various organizations (social security, drug treatment centres, probation offices, prisons, and youth rehabilitation centers). These organizations, when authorized by subjects on their consent form, provided current addresses or contact information or sent messages to participants. Interviewers traveled up to 200 km from Montreal to meet subjects who were unable to come to the study office for their follow-up interview, such as youths who were in a detention center or in a drug treatment center. Interviewers based in three other major Canadian cities (Quebec, Toronto, and Vancouver) also conducted follow-up interviews. Finally, for subjects who could not be met by an interviewer, the questionnaire was completed by phone.

Interviews

Each interview included signature of the consent form; collection of contact information; completion of a 45-minute interviewer-administered questionnaire covering sociodemographic characteristics, alcohol and drug use, and sexual behaviors; and collection of two samples of gingival exudate for HIV antibody testing (results not shown in this article). An identifying code permitted the linking of successive interviews for a given subject. Participants received financial compensation (Can \$20) for each visit. Original approval was provided by the Human Subjects (Ethics) Committee, Department of Epidemiology and Biostatistics, McGill University, and reapprovals were by the Institutional Review Board of the Faculty of Medicine at McGill University.

Statistical Methods and Measurements

The analysis was restricted to participants who had no history of injection drug use at cohort entry and who had completed at least one follow-up questionnaire by January 31, 2000. The global incidence rate of initiation into injection was calculated as the number of youths who initiated injection divided by the person-time at risk of injection; the 95% confidence interval (CI) was based on the Poisson distribution. The cumulative incidence was evaluated at different follow-up times using a Kaplan-Meier survival curve. Crude incidence rates of injection were estimated for various subsets defined as exposed or not exposed to specific predictors of interest. Cox proportional hazards regression models were used for univariate and multivariate analyses. The Cox model assessed risk at index dates, defined as the date when a participant reported having first injected and the corresponding time since study entry for noninjectors. Exposure status of all subjects was assessed at the questionnaire preceding the index date.

For estimation of the crude incidence rates and the regression analyses, variables were classified as constant or time dependent, with time-dependent variables divided into irreversible or transient. For time-dependent variables, person-years

for each study subject were allocated to relevant exposures categories as exposure status evolved over time. Constant predictors were measured once, at baseline, and their value did not vary thereafter. These predictors included gender, country of birth, having ever run away from home, and having ever been kicked out of home.

Time-dependent irreversible predictors were measured at each interview, and their value could change only once. These predictors included age less than 18 years, being homeless before age 16 years, tattooing, body piercing, bingeing on alcohol before age 14 years, bingeing on drugs before age 15 years, consensual sex before age 15 years, and intra- and extrafamilial sexual abuse. Subjects entering the study older than the cutoff age remained by definition in their baseline category.

For time-dependent transient predictors, exposure was measured at each questionnaire. Predictors covering the preceding 6 months included homelessness, employment or school attendance, having a regular or casual homosexual partner, and survival sex, defined as receiving money, gifts, drugs, a place to sleep, or something else in exchange for sexual activities. Current predictors (i.e., last month) were frequency of alcohol use, the use of various drugs, bingeing on alcohol, bingeing on drugs, the use of more than two types of drugs, the use of the same drug more than twice per week, and having a friend who injects drugs.

For the purpose of this analysis, all measures of ages at which certain behaviors or events occurred were dichotomized at their median value. All variables with *P* value of .20 or less in univariate regression analyses were entered into a multivariate Cox model. The final model was selected using a backward selection procedure. Instability of the confidence intervals around the point estimates was used to detect collinearity between covariates; no such collinearity was observed. The presence of interactions between predictors and gender was verified. Variables with *P* value of .05 or less were considered significant.

RESULTS

By January 31, 2000, 951 youths were recruited in the cohort. Approximately 12% of offers to participate were refused. Among participants, 464 had never injected drugs at baseline interview and had been recruited at least 6 months before January 31, 2000; 415 (89%) of them had completed at least one follow-up questionnaire. The analyses presented in this article were based on these 415 never injectors.

At study entry, the mean age of the 415 (131 girls, 284 boys) never injectors was 19.5 years. As of January 31, 2000, these subjects had completed from two to nine interviews (mean number of interviews 5.5; mean time between two interviews 6.5 months) and had contributed 1,058 person-years of follow-up. Table 1 presents some of their characteristics at baseline. Almost all participants were born in Canada and had ever been homeless. More than half of them had ever run away from home and had ever been kicked out of home. Reported substance use was high and included many types of drugs. Almost all subjects reported some types of consensual sexual activities, 13.7% had ever engaged in survival sex, and 32.8% had experienced either extra- or intrafamilial sexual abuse.

By the end of January 2000, 74 (30 girls, 44 boys) subjects had initiated injection drug use, for an incidence rate of 8.2 per 100 person-years (95% CI 6.4–10.3). The first substance injected by these youths was cocaine (51.4%), heroin (40.5%), phencyclidine (PCP) (4.1%), or something else (4.1%). Among the 38 who first injected cocaine, 34 had used it before. As for the 30 who first injected heroin, 13 had used it before.

TABLE 1. Baseline characteristics and behaviors of street youths with no history of injection drug use at entry (N = 415)

| Characteristics and behaviors | Number of youths | Proportion, % |
|---|------------------|---------------|
| Born in Canada | 391 | 94.2 |
| Ever been homeless | 389 | 93.7 |
| Ever ran away from home | 280 | 67.5 |
| Ever been kicked out of home | 239 | 57.6 |
| Ever had a tattoo | 170 | 41.0 |
| Ever had body piercing (excluding ears) | 129 | 31.1 |
| Ever used alcohol | 411 | 99.0 |
| Ever binged on alcohol | 213 | 51.3 |
| Ever used marijuana or hashish | 393 | 94.7 |
| Ever used hallucinogens* | 355 | 85.5 |
| Ever used cocaine, crack or freebase | 272 | 65.5 |
| Ever used solvents or glue | 124 | 29.9 |
| Ever used amphetamines | 105† | 25.4 |
| Ever used heroin | 41 | 9.9 |
| Ever used more than four types of drugs | 230 | 55.4 |
| Used a type of drug more than twice per week (last month) | 210‡ | 51.1 |
| Ever binged on drugs | 253 | 61.0 |
| Ever had consensual sexual activity | 410 | 98.8 |
| Ever had a regular or casual homosexual partner | 42 | 10.1 |
| Ever had extrafamilial sexual abuse | 93 | 22.4 |
| Ever had intrafamilial sexual abuse | 68 | 16.4 |
| Ever engaged in survival sex | 57 | 13.7 |

*Includes lysergic acid diethylamide (LSD), phencyclidine (PCP), mescaline, and mushrooms.

†N = 414 due to missing values.

‡N = 411 due to missing values.

The cumulative incidence of initiation into injection was 13.3% after 1 year of follow-up, 20.9% after 2 years, 22.0% after 3 years, and 27.2% after 4 years. The number of youths still followed and not injecting were 293 after 1 year of follow-up, 214 after 2 years, 139 after 3 years, and 49 after 4 years.

Variables identified as significant predictors of initiation into injection drug use in univariate Cox regression analyses are presented in Table 2 (sociodemographic and personal characteristics) and Table 3 (drug use and sexual behaviors). The predictors with the largest crude hazard ratios were being homeless in the last 6 months and, in the last month, use of heroin, hallucinogens, and solvents/glue and use of more than two types of drugs.

Some variables showed *P* values between .05 and .20 in univariate analyses: country of birth, being homeless before age 16 years, frequency of alcohol use (last month), use of codeine/percodan (last month), consensual sex before age 15 years, and having a regular or casual homosexual partner (last 6 months). These variables were entered in the multivariate model. Finally, variables with associated *P* values greater than .20, and therefore not entered in the multivariate model, were having ever been kicked out of home, attending school or working (last 6 months), use of marijuana/hashish (last month), use of a mix of heroin and cocaine (last month), and a history of intrafamilial sexual abuse.

TABLE 2. Crude incidence rates and univariate hazard ratios of initiation into injection: sociodemographic and personal characteristics

| Predictors | Number of new injectors* | Rates, per 100 person-years | Hazard ratio (95% CI) |
|--------------------------------------|--------------------------|-----------------------------|-----------------------|
| Being a girl | | | |
| Yes | 30 | 11.7 | 1.6 (1.0–2.6) |
| No | 44 | 6.8 | |
| Being less than 18 years | | | |
| Yes | 26 | 22.9 | 2.7 (1.7–4.4) |
| No | 48 | 6.1 | |
| Having been homeless (last 6 months) | | | |
| Yes | 63 | 14.6 | 4.5 (2.3–8.7) |
| No | 11 | 2.3 | |
| Ever ran away from home | | | |
| Yes | 59 | 10.2 | 2.1 (1.2–3.6) |
| No | 15 | 4.6 | |
| Being tattooed | | | |
| Yes | 46 | 10.8 | 2.1 (1.3–3.4) |
| No | 28 | 5.9 | |
| Has body piercing (excluding ears) | | | |
| Yes | 36 | 12.3 | 2.1 (1.3–3.3) |
| No | 38 | 6.2 | |

CI, confidence interval.

*New injectors are classified in the yes/no categories according to status at the questionnaire completed prior to their initiation into injection.

The independent predictors of initiation into injection drug use (Table 4) identified with the multivariate Cox regression analysis were being homeless (last 6 months); age younger than 18 years; being tattooed; use of heroin, hallucinogens, and cocaine/crack/freebase during the last month; having ever experienced extrafamilial sexual abuse; and among girls, currently having a friend who injects drugs ($P = .052$).

DISCUSSION

This study is the first prospective cohort study on factors predicting initiation into injection drug use among vulnerable youths. Although a first episode of drug injection does not necessarily mean that injection will become a regular route of drug administration,^{7,18,45} initiation to injection is of major concern. Previous studies have suggested the existence of a hierarchy of dependence, with the greatest risk being associated with injecting, and that once a transition has been made to injecting, it tends to be maintained.^{11,19}

Our incidence rate of drug injection of 8.2 per 100 person-years is comparable to the rate of 7.2 per 100 person-years found in the only other prospective cohort study, conducted in Amsterdam, which determined the rate of initiation into injection among never injectors.²⁶

TABLE 3. Crude incidence rates and univariate hazard ratios of initiation into injection: drug use and sexual behaviors

| Predictors | Number of new injectors* | Rates, per 100 person-years | Hazard ratios (95% CI) |
|---|--------------------------|-----------------------------|------------------------|
| Binged on alcohol (last month) | | | |
| Yes | 31 | 16.0 | 2.3 (1.4–3.6) |
| No | 43 | 6.1 | |
| Binged on alcohol before age 14 years† | | | |
| Yes | 26 | 11.9 | 1.8 (1.1–3.0) |
| No | 47 | 6.9 | |
| Used heroin (last month) | | | |
| Yes | 11 | 54.7 | 6.1 (3.2–11.6) |
| No | 63 | 7.1 | |
| Used hallucinogens (last month) | | | |
| Yes | 55 | 17.9 | 4.7 (2.7–8.0) |
| No | 19 | 3.2 | |
| Used solvents or glue (last month) | | | |
| Yes | 7 | 42.9 | 4.5 (2.1–9.9) |
| No | 67 | 7.6 | |
| Used tranquilizers, barbiturates, or downers (last month) | | | |
| Yes | 11 | 27.0 | 3.3 (1.7–6.2) |
| No | 63 | 7.3 | |
| Used cocaine, crack, or freebase (last month) | | | |
| Yes | 34 | 19.2 | 3.0 (1.9–4.8) |
| No | 40 | 5.5 | |
| Used amphetamines (last month) | | | |
| Yes | 9 | 24.0 | 3.0 (1.5–6.0) |
| No | 65 | 7.5 | |
| Used more than two types of drugs, (last month) | | | |
| Yes | 46 | 22.5 | 4.7 (2.9–7.5) |
| No | 28 | 4.0 | |
| Used a type of drug more than twice per week (last month) | | | |
| Yes | 44 | 11.1 | 1.8 (1.1–2.8) |
| No | 30 | 5.9 | |
| Currently has an IDU friend | | | |
| Yes | 46 | 16.8 | 3.4 (2.1–5.4) |
| No | 28 | 4.4 | |
| Binged on drugs (last month) | | | |
| Yes | 42 | 16.3 | 2.8 (1.8–4.5) |
| No | 32 | 4.9 | |
| Binged on drugs before age 15 years | | | |
| Yes | 34 | 12.3 | 1.9 (1.2–3.1) |
| No | 40 | 6.4 | |
| Engaged in survival sex (last 6 months) | | | |
| Yes | 15 | 24.5 | 3.7 (2.1–6.5) |
| No | 59 | 7.0 | |

TABLE 3. Continued

| Predictors | Number of new injectors* | Rates, per 100 person-years | Hazard ratios (95% CI) |
|-------------------------------------|--------------------------|-----------------------------|------------------------|
| Ever had extrafamilial sexual abuse | | | |
| Yes | 26 | 13.9 | 2.0 (1.2–3.2) |
| No | 48 | 6.7 | |

CI, confidence interval; IDU, injection drug user.

*New injectors are classified in the yes/no categories according to their status at the questionnaire completed prior to their initiation into injection.

†N = 73 incident cases due to missing values.

We identified several risk factors for the initiation of injection drug use. The most important predictor was being recently homeless, even in a population for which the vast majority have experienced homelessness. In contrast, a cross-sectional study among street youths, conducted in San Francisco, California, showed that current homelessness was not more frequent among injectors than noninjectors.³² However, other studies have suggested that the level of social integration of drug users in society may influence their likelihood of injecting drugs.^{45,46} Our finding supports this observation.

Age was another important factor, with youths younger than 18 years old being three times more likely to start injecting than older youths. This finding is consistent with research on drug use among youths that shows that problem use generally peaks between 18 and 20 years of age and declines thereafter.⁴⁷

Current use of hallucinogens, heroin, and cocaine/crack/freebase represent three independent predictors of initiation of injecting. In Montreal, heroin and cocaine are the two most popular injectable drugs, while hallucinogens such as PCP

TABLE 4. Multivariate Cox regression analysis for independent predictors of initiation into injection drug use among Montreal street youths

| Predictors | Adjusted hazard ratios* | 95% CI |
|---|-------------------------|----------|
| Having been homeless (last 6 months) | 3.3 | 1.7– 6.5 |
| Being less than 18 years of age | 2.8 | 1.6– 4.7 |
| Being tattooed | 2.1 | 1.3– 3.4 |
| Use of heroin (last month) | 2.5 | 1.3– 5.1 |
| Use of hallucinogens (last month) | 2.1 | 1.2– 3.9 |
| Use of cocaine, crack, or freebase (last month) | 1.8 | 1.1– 2.9 |
| Currently has an IDU friend | | |
| Among girls | 4.6 | 1.6–13.5 |
| Among boys | 1.4 | 0.7– 2.5 |
| Ever had extrafamilial sexual abuse | 1.9 | 1.1– 3.3 |

CI, confidence interval; IDU, injection drug user.

*Adjusted for the other variables in the model.

or lysergic acid diethylamide (LSD) are rarely injected. The association between hallucinogens and initiation into injection has never been reported before and is difficult to explain. One explanation could be that the current use of hallucinogens acts as a gateway toward the use of other drugs or toward a more intensive use of drugs.³¹ As for current use of cocaine or heroin, dependence could have played a role. In fact, studies have shown that intensive or prolonged use of a drug or dependence on a given drug were associated with its injection.^{7,11,18,19,25,26} We examined a model that included a measure of the frequency of use of heroin and cocaine while adjusting for the other variables retained in our final model. We observed a gradient of risk of initiating injection according to the frequency of heroin use in the last month, with an adjusted hazard ratio of 2.2 (95% CI 1.0–4.8) for subjects using twice a week or less and of 12.0 (95% CI 3.2–45.7) for those using more than twice a week compared to nonusers. Similarly, for cocaine use, subjects using twice a week or less had an adjusted hazard ratio of 1.4 (95% CI 0.8–2.4); for those using more than twice a week, it was 5.4 (95% CI 2.4–12.3). The ratios for the other predictors remained unchanged.

We also observed that a significant proportion of youths (31%) had never used the drug they first injected. Other studies showed similar results, with up to 51% of individuals reporting no prior use of the first-injected drug.^{11,12,18,19,22,23,48} Therefore, even though dependence can influence users to initiate injection, it is obviously not a necessary condition. Other factors related to drug use, alone or in combination, may contribute to injection. Some youths may not be aware that the drug can be used through routes of administration other than injection.¹² Others may inject because it is the most prevalent route of administration in their area for the drug they want to try or because they perceive that it is the best route given the quality and purity of the drug available in the local market.^{10,12,45,49–53} In fact, the drug market and other socioenvironmental determinants have been shown to influence drug use patterns among youths.⁵⁴ Finally, youths might simply try injection out of curiosity about a drug or the ritual and paraphernalia involved.^{12,49,52,55}

With respect to tattoos, we can only speculate about the reasons for this association. For example, in some studies, drug users have reported that they would not start to inject because of their fear or dislike of needles.^{5,12,45,46} Tattooed subjects may have less fear of needles. Tattooing might also be a marker of a subculture of youths who would be more prone to injection.^{32,35,50} However, we have no data to support this hypothesis.

There is some evidence in the literature that sexual abuse may be a risk factor for substance use disorder or HIV risk behaviors,^{56–58} although it is not clear regarding injection drug use.³⁰ In our study, there was no association between initiation into injection and intrafamilial sexual abuse. However, youths having experienced extrafamilial sexual abuse were twice as likely to start injecting. This finding may just indicate that extrafamilial sexual abuse is a marker of the youth's involvement in a more violent milieu.

Finally, current affiliation with friends who inject drugs is a significant predictor for girls, but not for boys. A widespread explanation for this difference is that women begin injection as a result of influence of their sexual partner. Indeed, some studies have shown that women are mostly initiated by a partner or a lover, while men are often initiated by male friends.^{49,50,52,59–61} In our study, youths were asked who carried out their first injection. Only 3% of girls and 7% of boys reported that their initiator was a lover; the majority reported that it was a friend or an acquaintance (72% and 60%, respectively). Therefore, as in the study of Doherty

et al.,⁵⁵ the belief that women start injection because of the influence of a partner or lover does not seem to hold among street youths. Nevertheless, the explanation why, in our study, having friends who inject drugs is a more important predictor of initiation into injection for girls than for boys remains to be found. The effect that an individual's social network has on initiation into injection drug use merits further investigation.

Some limitations of our study must be taken into account when interpreting the results. First, like most studies on drug use, ours relied on self-reported information, which may be subject to social desirability bias. Conditions in which interviews were conducted and the nonjudgmental attitude of interviewers should, however, have helped to decrease this bias. Another limitation, also related to self-report, could be recall bias. However, this potential bias was significantly reduced by the prospective design of our study and the fact that data were collected every 6 months after entry into the study.

Another potential area of concern is the generalizability of our results. Given the entry definition and recruitment strategy we used, we are confident that youths in our cohort are representative of the larger Montreal street youth population. First, we recruited subjects in all major organizations offering services to street youths. Second, as shown in a recent survey of the homeless population of Montreal, over 90% attend community organizations that offer services to homeless.⁶² And, third, only a few youths who were approached in these services refused to participate. However, we do not know how our results are generalizable to street youth populations in other urban centers.

Finally, a potential limitation could be selective loss to follow-up. Never injectors who were lost to follow-up after their initial interview, and who were therefore excluded from the analysis, were comparable to the never injectors retained in the analyses with regard to age, homelessness in the last 6 months, and use of heroin and of cocaine/crack/freebase in the last month. However, never injectors lost to follow-up were less likely to be tattooed, to have used hallucinogens in the last month, and to have friends who inject drugs, while they were more likely to have experienced extrafamilial sexual abuse. The impact of the selective losses to follow-up is difficult to assess and may have either overestimated or underestimated the actual risks. However, the effect should have been minimized by the low attrition rate that was achieved through the intensive follow-up procedures.

In conclusion, injection drug use is a very complex phenomenon that is often the result of the interaction of individual, social, economic, and cultural factors. This first epidemiologic study on initiation of injection drug use among street youths allowed us to estimate the incidence of the problem among vulnerable youths and to characterize those at highest risk of starting injection. The high incidence rate we found is of concern. However, we were able to identify several factors, such as homelessness, sexual abuse, and problematic drug use leading to initiation, that could be influenced by preventive interventions. Possible strategies include more accessible drug treatment services for youths engaged in intensive drug use and/or having dependence problems, and interventions based on social network to improve knowledge about different routes of drug administration and their consequences. Clearly, programs to help youths leave the streets should be considered important interventions to prevent initiation into injection. Involving peers in the design and the delivery of these programs may be promising for this highly marginalized population.

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